

REMARKS

By this amendment, claims 48-53 have been added. Thus, claims 15-42, 44, 45 and 47-53 are now active in the application. Reexamination and reconsideration of the application are respectfully requested.

In items 5-7 on pages 3-7 of the Office Action, claims 15, 16, 21, 22, 26-31, 35-42, 44, 45 and 47 were rejected under 35 U.S.C. 102(b) as being anticipated by Fukui et al. (U.S. 5,806,567); claims 17, 18, 20, 23, 25, 32 and 34 were rejected under 35 U.S.C. 103(a) as being unpatentable over Fukui et al. in view of Parrott et al. (GB 2 241 466); and claims 19, 24 and 33 were rejected under 35 U.S.C. 103(a) as being unpatentable over Fukui et al. in view of Parrott et al. and further in view of Berdan, II (U.S. 6,042,911). These rejections are respectfully traversed for the following reasons.

Each of claims 15, 22 and 31 sets forth a "noncombustible" insulating duct comprising an elongated strip formed of an insulating material and a "noncombustible" sheet wherein the noncombustible sheet is disposed continuously about a circumference of the insulating material so as to completely encase the insulating material when viewed in longitudinal cross section. The encasement of the insulating material within the noncombustible sheet renders the insulating duct noncombustible.

In contrast to the present invention of each of claims 15, 22 and 31, the Fukui et al. patent does not disclose or suggest the formation of a tubular duct formed of an insulating material enclosed by a **noncombustible** sheet, nor that the tubular duct is itself noncombustible. Rather, Fukui et al. discloses a heat insulated hose formed of a heat insulating material 3 enclosed by a PVC band material 11 and a PVC band material 41, but the PVC band materials 11 and 41 are not disclosed as being noncombustible, as required by each of claims 15, 22 and 31. Specifically, the band material 11 is described as being "a soft PVC band material" (see column 3, lines 20 and 21), and the band material 41 is described as being "a soft PVC band" (see column 3, line 41). These bands 11 and 41 are thus not disclosed as being noncombustible, nor is the overall tubular duct of the Fukui et al. reference disclosed as being noncombustible.

The Examiner cited the Parrott et al. reference for disclosing "a noncombustible insulating duct that comprises panels of sheet material that comprise resin-bonded mineral wool strips adhesively bonded to and encased by inner and outer galvanized non-combustible steel sheets." However, the steel sheets 9 of Parrott et al. are used in rectangular, non-flexible duct work, whereas the Fukui et al. tubular hose is prepared for the specific reason of improving the characteristics of a flexible tubular hose (see the Fukui et al. flexible tubular hose in its flexed state in Fig. 4, and also see the "Background of the Invention" section and the "Summary of the Invention" section of the Fukui et al. patent at column 1, lines 20-58, for example). A person of ordinary skill in the art would clearly not have been motivated to modify the flexible hose of Fukui et al. to utilize noncombustible steel sheets in view of the teaching of Parrott et al., since the Parrott et al. noncombustible sheets are used to form inflexible duct work, whereas the hose of Fukui et al. is required to be flexible.

The Examiner cited the Berdan, II patent for teaching glass wool as an insulating fiber. However, this teaching of Berdan, II clearly would not have obviated the above-discussed shortcomings of the Fukui et al. and Parrott et al. references.

For these reasons, it is believed clear that the independent claims 15, 22 and 31 are not anticipated by the Fukui et al. reference and, furthermore, that the teachings of the prior art of record would not have motivated a person of ordinary skill in the art to modify the Fukui flexible hose in such a manner as to result in or otherwise render obvious the present invention of claims 15, 22 and 31. Therefore, it is respectfully submitted that claims 15, 22 and 31, as well as the claims which depend therefrom, are clearly allowable over the prior art of record.

The Examiner's attention is also directed to the new dependent claims 48-53 which set forth additional features of the invention and further define the invention over the applied prior art.

With exemplary reference to the drawing figures, claim 48 requires that the turns of the elongated strip 1 are secured together in a side-by-side relationship (see Fig. 1) by the bonding agent 7, with each adjacent pair of the turns having mutually adjacent sides that face each other

along an axial direction of the tubular duct (i.e. in the side-to-side direction in Fig. 1); and, for each of adjacent pair of the turns, the bonding agent 7 is interposed between the mutually adjacent sides that face each other along the axial direction of the tubular duct, so as to secure the plurality of turns together to form the tubular duct.

In contrast to these requirements of claim 48, the Fukui et al. patent discloses that each pair of turns of the elongated strip of Fukui et al. shares a sidewall formed by the resin band 41 in order to hold the turns together in an axial direction. An adhesive is used, but is applied only to "the intermediate part of the half of the previously wound band material 11 with which the next wound band material overlaps (i.e., the left side half of the band material 11 shown in Fig. 2)" (see column 3, lines 24-31). Thus, the adhesive 5 of Fukui et al. clearly cannot be said to constitute a bonding agent that is interposed between the mutually adjacent sides that face each other along the axial direction of the tubular duct, as required by claim 48.

Claim 49 is directed to the flange 4 and joint member 5 arrangement shown in Fig. 2, and specifies that the turns of the elongated strip 1 further include respective inner surface sides that together form an inside tubular surface of the tubular duct, and that, for each adjacent pair of the turns, each of the mutually adjacent sides, which face each other along the axial direction of the tubular duct, has an inwardly extending flange 4 that respectively projects inwardly beyond the inner surface sides of the turns of the elongated strip. Claim 49 further requires the inclusion of a noncombustible joint member 5 that is constituted by a spiral member that is separate and discrete from the elongated strip and has a plurality of turns, and the turns of the noncombustible joint member 5 are respectively secured to adjacent pairs of the inwardly extending flanges 4 of the elongated strip 1 so as to secure the turns of the elongated strip 1 together to form the tubular duct. Clearly, no such arrangement is disclosed or suggested by Fukui et al. or any of the other references of record.

Claim 50 requires both the bonding arrangement 7 provided between the mutually facing sides of the turns of the elongated strip 1, and the flange 4 and joint member 5 arrangement shown in Fig. 2.

Each of the dependent claims 51-53 sets forth that each of the turns of the elongated strip 1 is continuous with an adjacent one of the turns along a spiraling direction of the elongated strip 1, but is otherwise separate and discrete from the adjacent one of the turns. This is in clear contrast to the Fukui et al. arrangement, wherein the adjacent turns of the Fukui et al. hose share components. Specifically, each turn of the band material 11 of Fukui et al. forms an inner surface side of two adjacent turns, and the band material 41 of Fukui et al. forms a layer of the outer side of each of two adjacent turns, as well as a shared sidewall of a third adjacent turn. Therefore, contrary to the requirements of each of claims 51-53, it cannot be said that each turn of the elongated strip is separate and discrete from the adjacent turn thereof except to the extent that it is continuous with an adjacent turn along a spiraling direction of the elongated strip.

In view of the foregoing amendments and remarks, it is respectfully submitted that the present application is clearly in condition for allowance. An early notice thereof is earnestly solicited.

If, after reviewing this Amendment, the Examiner feels there are any issues remaining which must be resolved before the application can be passed to issue, it is respectfully requested that the Examiner contact the undersigned by telephone in order to resolve such issues.

Respectfully submitted,

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